

**DESIGNING AND CONSTRUCTING GARMENTS FOR  
CEREBRAL PALSY CHILDREN**

**BY**

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**A THESIS SUBMITTED TO THE  
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**NUTRITIONAL AND HEALTH ISSUES OF  
DIFFERENTLY CHALLENGED CHILDREN IN  
THE SELECTED HOMES AT COIMBATORE**

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## INTRODUCTION

Clothes are made up of fabric and fibers selected mainly for their preference and properties. Clothes are worn by people for various reasons. In reviewing the literature, the explanations most often cited for the use of clothing are protection, modesty and self adornment (Jaco and Geetha (2005)). Clothing is important interface between the human and environment. Clothing helps you to maintain your proper body temperature. Comfort is related to personal sensitivity and is a highly individual matter. It involves direct contact of the body with the fabric when used for such purposes as temperature control, concealment or adornment.

The effect of clothing can take care of psychological and physical aspect of comfort by suitable selection of colour, design, texture, style, garment fit etc., (Kholiya and Goel (2008)). Clothing is the second skin ranking with food and shelter as essential for human survival. Clothes are an outward expression of how people feel about themselves and the kind of world they tend to live in (Pati, Naik and Gandhad (2001)). Clothing plays an important role in developing over all personality of the child, a thoughtful planning and selection of clothing for the young children is considered necessary. Since mothers are primarily responsible for their children, they are accepted of children's clothing (Prasad and Mazumdar (2007)).

The strength of Indian readymade industry is in abundant is available of raw material, abundant supply of labour, sufficient production capacity, low cost of labour and the support by government (Kinny (2001)). The term apparel or garment as well as knit wear or hosiery. It must be stressed that standardization on the never comes in

the way of fashion or design which is dependent on the aesthetic sense of the customer. A garment may have excellent fit and attractive look but the basic cloth used for making garment has an important role to play, since all its characteristics are reflected in the garment, these standards cover the constructional particulars like ends, picks weight, breaking load, width, length, scouring loss, shrinkage, colorfastness, etc.,

The purpose of clothing is to maintain body and mental efficiency and feeling of comfort in a particular climatic condition. Over the years the focus on textile garments have shifted from general to specific applications. More functional requirements are concentrated in the production of garments Sampath (2003). Children's garments have now become the exclusive domain of readymade garments manufactures. Children's wear should be colorful and pretty. The dress should be bright in shades, soothing, shade with alluring animal figures, colourful fancy buttons, attractive, yet practical trimmings will be popular. Dress like T.Shirt, play suits, salwarkameez, Baba suits, frocks rompers, ghagracholi, pyjama, suits, wrap skirt, dhoti, kurta, sailor suits will be in great demand. Children's wear should be simple elegant, cool, comfortable with freedom of movement to play. Jacob (1999).

Cerebral palsy is actually a group of neuromuscular disorders that result from damage to the central nervous system before, during, or after birth. These are three major types of cerebral palsy – spastic, Athetoid, and Ataxic although the disorder sometimes occurs in mixed form and other grouping system are recognized Eldyke and Algozzine (2005). Cerebral palsy is a non progressive neurological disorder of

muscle co-ordination and control. It usually manifests itself at birth and continues to disable the individual throughout life.

Cerebral palsy does not directly affect the muscles of the extremities or the nerves connecting to the spinal cord. Rather, it is the brain's ability to control or co-ordinate those muscles that is affected. The various types of cerebral palsy are: Monoplegia, Diplegia, Triplegia, Quadriplegia, Hemiplegia, and Double-Hemiplegia. A majority of children with cerebral palsy have oral and dental problems like difficulties in swallowing, sucking, biting, chewing, dental carries and malformed teeth. Not all children with cerebral palsy are mentally handicapped or vice versa Venkatesan (2007).

Cerebral palsy is a disorder of movement and posture resulting from a permanent, non-progressive defect or lesion of the immature brain. The motor aspects of the disorder are often accompanied by defects of sight or hearing, speech and intellect. There is often lack of control of tongue, and lips, visual perceptual disorders, loss of tactile discrimination, spatial disorders and seizures as well as abnormal behaviours patterns. Although the condition may be pre-natal (before birth), postnatal (after birth) or a combination of factors. Pre-natal causes include inherited causes (rare), infections in the mother during pregnancy, lack of oxygen to the foetal brain, prematurity, and metabolic disorders in the mother. Haskell and barrett (1999).

Cerebral palsy children often have difficulty in discrimination figure and background than do normal children affect primarily the upper and lower limbs spine and joints. As children are unable to walk, sit or use hands. Some children have clubfoot. This is a condition is which one or both feet are downward and inward at the ankle occur

most frequently. All these conditions are commonly found in school age children particularly at the elementary grade levels. The incidences of these disorders have decreased because of medical treatment. Panda (2005).

Always clothes brought one size larger. When purchasing or construction clothes for cerebral palsy it should have front open. It will be easier to unfasten if the fasteners are at the front of the clothes. Fasteners should be as simple as possible. Instead of buttons, zip should be used on pants and shirts and elastic instead of string on Pyjamas all clothes should have front opening. Loose T-shirts without any fasteners are easy to wear. ([Asksource.info/ptf/A932](http://Asksource.info/ptf/A932) – dressing for the child – 1995.ptf).

Boys and girls differ very little in size although boys tend to be slightly taller and somewhat heavier than girls begin to increase size and there is a tendency for the girls to surpass the boys in both height and weight. In approaching the end of this period, this discrepancies' of growth and maturation between boys and girls begin to be apparent on average, there are approximately two years different in age between boys and girls for the onset pubescence Cooklin (1996).

## **II REVIEW OF LITERATURE**

The review of literature pertaining to the title “**Designing and Constructing Garment For Cerebral Palsy Children**” are listed under the following headings.

### **2.1 Clothing**

2.1.1 Functional Clothing

### **2.2 Cerebral Palsy**

2.2.1 History

2.2.2 Symptoms of Cerebral Palsy

2.2.3 Other Neurological Problems

2.2.4 Causes of Cerebral Palsy

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2.3.1 History

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### **2.4 Cotton**

2.4.1 History

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2.4.3 Benefits of Cotton

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## **2.5 Designing**

### 2.5.1 Types of Design

### 2.5.2 Principles of Design

### 2.5.3 Elements of Design

## **2.1 CLOTHING**

Clothing refers to covering and garments intended to be worn on the human body. The word cloth is related to fabric or textile. The word fabric and cloth are commonly used in textile assembly trades such as tailoring and dressmaking as synonyms for textile. Cloth refers to finished piece of fabric that can be used for a purpose such as covering a bed or table parvathi (2007). The scope of clothing industry has been defined as the manufacture of garment worn on the body and this excludes the extremities, example: hats, gloves, stocking socks and shoes cooklin (1996).

Clothing means trace the development of dress by studying various sources, including magazines, catalogues, painting photographs, hats, shoes, and other surviving items Jefferson (2009). Today the importance of clothing is recognized everywhere from the richest to the poor, from the inhabitants of large cities to inhabitants of remote areas and in all age group. Clothing contributes to the attainment of certain desires; physical, comfort, social, participation, conformity, prestige, self expression, attracting the opposite sex and aesthetic expression. Clothes help to make us self-confident, jolly, free, or they make us self-conscious, shy, sensitive, and restrained, kulshrestrh and kashyap (2007). Clothing can improve appearance,

hide physical defects and give aesthetic pleasure to the wearer through its design in dresses Tutya and singh (2010).

### **2.1.1FUNCTIONAL CLOTHING**

A technical design development process for functional clothing that involves a direct relationship with the demands of the human body. Functional clothing should both work and look good, and be in tune with aesthetic, technical and cultural lifestyle demands of the target customer Cann (2000). Functional wear has quite different requirements from everyday clothing, with prime performance features including support, movement and protection, as well as overall comfort, in the occupational work wear field, special jobs demands functional wear, ordinary every day activities. The movement of the human body is relatively limited. For example, when walking, the body is normally erect and both arm and leg movements are not extreme. Traditional standard blocks cater for garment designed for relatively upright posture and restrained movement Cann and Hamk (2009).

### **2.2 CEREBRAL PALSY**

Cerebral palsy or “Brain paralysis is a disability that affects movements and body position. These are a series of neuromuscular disabilities which are characterized by disturbances involuntary motor action, in the extremities mostly resulting out of brain damage.

**VARIOUS TYPES OF CEREBRAL PALSY DISORDERS ARE  
GIVEN IN TABLE I**

**TABLE - I**

<b>No.</b>	<b>TYPES</b>	<b>AREAS OF BRAIN LESION</b>
1.	Spasticity	Motor cortex and pyramidal tracts.
2.	Athetosis	Basal ganglia and extra pyramidal tracts.
3.	Ataxia	Sub cortical, cerebellum.
4.	Rigidity	Diffuse
5.	Temor	Basal ganglia

Panda (2005).

Cerebral palsy means a group of non – progressive conditions of a person characterized by abnormal motor control posture resulting from brain insult or injuries occurring in the prenatal, Peri-natal / infant period of development Tyagi (2003).Cerebral palsy is a group of neuromuscular disorders that result from damage to the central nervous system before, during or after birth. There are three types of cerebral palsy- Spastic cerebral palsy, Athetoid cerebral palsy, and Ataxic cerebral palsy.

### **SPASTIC CEREBRAL PALSY**

Spastic cerebral palsy is the most common occurring in the 70% of those who have the disorder. Several spasticity leaves the individual rigid, with muscles tense and contracted Bjorklund (2007).

### **ATHETOID CEREBRAL PALSY**

Athetoid cerebral palsy occurs in approximately 20% of those who have the disorder. The condition results in involuntary

movement's grimacing, writhing, and sharp jerks- that impair voluntary movements Gold (2001).

## **ATAXIC CEREBRAL PALSY**

Ataxic cerebral palsy is the test form, occurring in about 10% of those who have cerebral palsy ysseldyice (2006). Person with cerebral palsy have demonstrated a lower physical work capacity than their peers with disabilities Mecham (2002).

Cerebral palsy is the result of brain damage. The slow emotional disturbances like that of Strauss children. Some of them have impairments perceiving shape, weight, and texture, and few others have inability for spatial orientation and judgment.stanton (2012). CP formally known "cerebral palsy", was first identified by English surgeon William little in 1860. Little raised by possibility of asphyxia during birth as a chief cause of the disorder, it was not until 1897 that Sigmund Freud, then a neurologist, suggested that a difficult birth was not the cause but rather only a conducted during the 1980s by the national institute of neurological disorders and stroke (NINDS) suggested that only a small number of cases of cerebral palsy are caused by lack of oxygen during birth (Wikipedia.org/wiki/cerebral\_palsy).

### **2.2.1 SYMPTOMS OF CEREBRAL PALSY**

Signs and symptoms can vary greatly. Movement and coordination problems associated with cerebral palsy may include:

- Variations in muscle tone -either too stiff or too floppy
- Stiff muscles and exaggerated reflexes (spasticity)
- Stiff muscles with normal reflexes (rigidity)
- Lack of muscle coordination (ataxia)
- Tremors or involuntary movements
- Slow, writhing movements (athetosis)
- Delays in reaching motor skills milestones, such as pushing up on arms, sitting up alone or crawling
- Favoring one side of the body, such as reaching with only one hand or dragging a leg while crawling
- Difficulty walking, such as walking on toes, a crouched gait, a scissors-like gait with knees crossing or a wide gait
- Excessive drooling or difficulty with swallowing
- Difficulty with sucking or eating
- Delays in speech development or difficulty speaking
- Difficulty with precise motions, such as picking up a crayon or spoon.

The disability associated with cerebral palsy may be limited primarily to one limb or one side of the body, or it may affect the whole body. The brain injury causing cerebral palsy doesn't change with time, so the symptoms usually don't worsen with age, although the shortening of muscles and muscle rigidity may worsen if not treated aggressively Hinchcliffe (2003).

### **2.2.2 OTHER NEUROLOGICAL PROBLEMS**

Brain abnormalities associated with cerebral palsy may also contribute to other neurological problems. People with cerebral palsy may also have:

- Difficulty with vision and hearing
- Intellectual disabilities or mental retardation
- Seizures
- Abnormal touch or pain perceptions
- Dental problems
- Urinary incontinence. Miller (2005).

### **2.2.3 CAUSES OF CEREBRAL PALSY**

The exact causes of most cases of cerebral palsy are unknown, but many are the result of problems during pregnancy in which the brain is either damaged or doesn't develop normally. This can be due to infections, maternal health problems, a genetic disorder, or something else that interferes with normal brain development. Problems during labor and delivery can cause cerebral palsy in some cases. But this is the exception. Premature babies — particularly those who weigh less than 3.3 pounds (1,510 grams) — have a higher risk of cerebral palsy than babies that are carried full-term, as are other low birth weight babies and multiple births, such as twins and triplets. Brain damage in infancy or early childhood can also lead to cerebral palsy. A baby or toddler might suffer this damage because of lead poisoning, bacterial meningitis, malnutrition, being shaken as an infant (shaken baby syndrome), or being in a car accident while not properly restrained Fong (2005).

## **2.3 COLOUR**

### **2.3.1 HISTORY**

The colour is regarded as properties of various objects around us. This attitude is quiet sophisticated towards colour. Colour should be described accurately Narang (2002).The appeal of colour is one of the greatest enjoyments. It is the ability to use it beautifully sodhiya (2008).Colour affect every movement of our lives although our colour choices are mostly unconscious Thomas (2006).It has sometimes seemed that our mental images of colour as expressed in language, and the colour, perceptions deriving from our experiences of nature and visual art, are incommensurably distinct.

A biographical essay on colour in literature, published in 1946, could discover from a total of nearly twelve hundred times, chiefly. Psychological and literacy only some thirty relating to the visual arts, and the compiler concluded that there could indeed be little interchange between colour in art and colour in literature Gage (2000).The simple experiment of sir Issac Newton determines the composition of white light and demonstrates that light is the source of colour. In the experiment a narrow beam of sunlight is intercepted by a glass prism which refracts the beam and splits in into its constituent elements, with the result that in forms a band of different colours, which may be displayed on a screen Grosicki (2004).

### **2.3.2 ROLE OF COLOUR**

Colour plays a important role in human life. we are all surrounded by nature and manmade objects which process some or the other colour. Colour is not a static quality, it appears to change colour

and also appears to have weight and energy mullick (2006). Selection of colours depends largely on the personal selection whether a person likes to have warm or cool colours. But it is best to go for natural colour selection. This exactly suits a certain personality. This is determined by the colour of hair, skin, eye, and the bone structure Sumathi (2005).

### 2.3.3 QUALITIES OF COLOUR

There are three properties or qualities which may be called dimensions of colour, and which are just as distinct from one another as the length, breadth, and thickness of an object. These colour eliminations are.

- Their warmth / coolness – hue
- Their lightness / darkness –value
- Their brightness / dullness – intensity Sodhiya (2008).

Qualities of colours are achieved by combination of light or dark, the results are the effects that it creates on a design and ultimately to the personality of the wearer. The different qualities of colours are

**Tone** – Tones is formed by mixing white or black to the base colour.

**Light colour** – Addition of white to a basic colour results in lighter shade of any colour.

**Dull colour** - Addition of grey to a basic colour reduce the brightness, hence a dull colour is achieved.

**Dark colour** - Combination of primary base for the basic colours results in darker shade.

**Vivid colour** - They are also called as surprising colours. The vivid or bright colour has powerful personality Sumathi (2005).

Children's wear designers are less influenced by fashion trends than the women's wear designers. Classic colour selection is the primary selection. And secondary is the brightcolour selection for all but the youngest children. Dark, rich, fall classics like rust crimson, royal blue, and fall range of greens from hunder through tear are perennial favourites yellow and golden are often used as accents. Plaid flannels are traditionally popular for fall and blend well with the classic colours used for pants and skirts. Denim and khaki are classic neutral bottom weights. Black is less frequently used in children's wear than for adults Tate (2009).

**TABLE - II**

<b>COLOURS</b>	<b>QUALITIES</b>
Yellow	Warm, sunny, bright, cheerful.
Red	Warm, stimulation, exhilarating, courageous, vigorous.
Orange	Lively, joyous, cheering, warm.
Green	Cool, quiet, calm, restful, soothing, refreshing
Blue	Coolest of colours, serene, tranquil, peaceful,
Purple	Rich, royal, dignified, dramatic, enigmatic.
White	Pure, light, cool
Black.	villainous, dead, grave, warm

(Gupta, Garg and saini 2005).

## **2.4 COTTON**

### **2.4.1 Introduction**

The cotton word is derived from the Arabic word quoton or qutum which means plant found in conquered lands, the cotton plants belongs to malvarage family Yadla and jasrai (2005). The purest form of cotton fibers are cellulose Goode, Townsend (2011). Domesticated cotton first come into widespread use in ancient India around 3000B.C. Cotton cloth had a simple weave to take advantage of the materials lightness airiness. It can be dyed and printed by hand using wood blocks that had patterns cut into them Jefferson (2009).

In the new world, the Mexicans used cotton for weaving in the pre Columbian period. Cotton textiles were found in the West Indies and in South America by explorers in the 15<sup>th</sup> and 16<sup>th</sup> centuries. Cotton became the most important stable fiber in the world for quantity, economy and utility Thomas (2006). The economic significance of cotton in the global market is evident by its majority share over 50% among fiber for apparel and textile goods Gordon and Hsieh (2007).

### **2.4.2 HISTORY**

In the first century; Arab traders brought cotton cloth to Europe, and in the 9<sup>th</sup> century has Moors introduced the cultivation of cotton into Spain. During the late medieval period, cotton becomes known as an imported fiber in northern Europe. At that time people were only familiar with fibers derived from animal such as wool and not knowing much about plant based fibers. The cotton was produced by plant – borne sheep. Throughout the warmer regions in Asia and America in the late 18<sup>th</sup> and early 19<sup>th</sup> century, during the establishment of British

colonial rule in India. India's cotton – processing sector gradually declined.

Today the five leading cotton producing countries are china, India, united states, Pakistan, and Brazil, ([http / www.nanok – kids – clothing .com /history-of cotton.htm/](http://www.nanok-kids-clothing.com/history-of-cotton.htm/)) Woven fabrics are used in many of the industries where high performance, quality and durability are essential qualities some of the products within this category may also have an aesthetic importance attached to them which includes transportation seating fabrics for the automobile and aircraft and outdoor/ sports apparels sectors Goode and Townsend (2011).

The kids dress manufacturers must ensure that, only those materials are in use, which are comfortable for the kids and easy washable. Kid's cotton dresses are made according to the latest fashion. These fashionable kids' dresses are preferred by every kid and parents. Before the final dispatching, the qualities of these cotton dresses are checked intensively Davis (2008).

Children's are more active than babies. They tend to fall every time because of their unbalanced bodies. The garments consultant for them should be bright in colour. So that they do not seem too dirty when worn for longer time. Children are more active hence their garments should be steady and abrasion- resistant, and pilling – resistant made up of filament yarns. The garment should be loose enough so that they do not restrict their body movements. The garment should be able to handle repeated washing and should be stain-resistant pure cotton do not fulfill all these needs hence synthetic mixed cottons may be utilized. The number of clothing should be confined due to the rapid

growth of children. The cost may vary from reasonable to high since too cheap garments do not suit all the needs Rastogi (2009).

### **2.4.3 PROPERTIES OF COTTON**

Cotton is a natural fiber and it is harvested from the cotton plant. The properties of cotton are many – it is soft, versatile and strong qualities make it ideal for clothing and many other items

- It is soft
- It breathes
- It absorbs body moisture.
- It is comfortable.
- It is strong and durable.
- It is versatile.
- It performs well.
- It has good colour retention
- It is easy to print on.
- It wrinkles easily.
- It is easy to care for, easy to wash.
- It is natural resource that is fully renewable.

([http:// www.nanok-properties-of-cotton.thm/.](http://www.nanok-properties-of-cotton.thm/))

### **2.4.4 BENEFITS OF COTTON**

One of the main benefits of cotton clothing is the softness of the fabric. It is super soft against the skin and therefore comfortable to wear, making it ideal for babies and children. Cotton is a natural fiber and the fabric therefore allows for better air circulation, which helps to absorb body moisture, drawing heat away from the skin. Cotton is non-allergic, making it the choice of material for children who suffer from

asthma / allergies, or those who have sensitive skin prone to irritation. Organic cotton is even better; it uses no synthetic fertilizers or pesticides and therefore leaves an even smaller foot print on the planet than ordinary cotton. (<http://www.nanok-kids-clothing.com/-kids-cottonclothing>)

#### **2.4.5 ADVANDAGES OF COTTON**

Cotton can be easily dyed with various colours. Because of its high absorbent property. Cotton is a good conductor of heat; cotton does not contain any chemicals and therefore is a natural product denotes Devitet al (2002). Cotton is able to take up a wide range of dye stuff, requires low cost of production and also gives comfort during wear Rathiet al (1999).

#### **2.5 DESIGN**

Design is about relating elements. Whether they are similar or construction and visually arranging an interesting unity with them. Shapes, forms, colours, and texture all combine to become a unified whole which is commonly called a design Wilson (2001). Designing means moving from the state of randomness of the higher state of organization, to create a design a impression or to communicate an important or innovative idea sumathi (2005). Design is composed of an arrangement of line, form, shape, space, colour and texture Mullick (2006).

## **2.5.1 TYPES OF DESIGNS**

Design can be divided into Structural design and Decorative design

### **Structural design**

It is one of the most important means of identification which represents the fundamental character of the article under consideration. This fundamental quality is potent in conditioning whether the article is considered good or poor in design. Structural design also includes colour and texture of the material from which the article has been formed. As Goldstein says structural design is defined as the design made by the size, form, colour and texture of an object worked out on paper explain Neelima (2009).

### **Decorative design**

These designs need the basic form or croquet and designs drawn will be draped over it Sumathi (2005).

## **2.5.2 PRINCIPLES OF DESIGN**

Design features, the elements and principles of design, can be called the language of art and design.

### **Proportion**

Proportion refers to the linear sub-division of objects and shapes, and concerns the balance of shape, volume, colour, fabric, texture and scale. The combination of these elements makes the design of garments infinitely diverse. Having a sense of proportion can be said to be subjective, in that the division in shapes can appear to be right or wrong depending on personal view and contemporary values. However, many theories have been expounded on the possibility of

mathematical rules, which would provide a formula for perfect and pleasing harmonies, like the golden mean. Historically proportion is sometimes rationalized, for example the classical line during the renaissance McKelvey and Munslow (2005).

### **Balance**

Balance refers to equilibrium and securing. It is achieved by grouping lines. Shapes and colour about or around the centre. Line is such a way that the attraction of both the sides of the centre is equal and a sense of repose is conveyed. Balance may be created by having two sides of a design identical or different but placed in such a way that the effect is pleasing. Balance is the concept of visual equilibrium relates to our physical sense of balance. It is a reconciliation of opposing forces in a composition the results in visual stability. Most successful composition achieves balance in one of two ways. Symmetrically or asymmetrically. Symmetrical balance can be described as having equal weight on equal sides of centre line. Asymmetrical balance is also called informal balance. It is more complex and difficult to envisage. Lauer and pentak (2006).

### **Emphasis**

Emphasis is created by a center of interest by focusing the attention on a specific area of the garment. The dominant idea expressed in a dress is called an emphasis. The designer uses the principle of emphasis to direct the eye of the customer figure problem can be camouflaged by emphasizing the positive elements of the body and deemphasizing the negative ones. Emphasis can be created in a number of ways.

- Repetition creates emphasis by calling attention to the repeated element through sheer force of number.
- Contrast achieves emphasis by setting the point of emphasis about from the rest of its background
- Contrast of colour, texture, or shape will call attention to a specific point contrast of size or scale will as well Pundir (2007).

## **Harmony**

It is the end of the result. It is achieved in the joint application of principles of proportion, balance, emphasis, and rhythm. A harmonious design produces a realization of unity oneness. The selection of each parts with regard to design, texture, size, shape and colour. Concluding with development of our appreciation of these principles of conceptions of good design is never out of style and these principles are never static. They are flexible guides to be utilized in producing designed results and developing a capacity for good. Taste in an individual Rastogi (2009).

### **2.5.3 ELEMENT OF DESIGN**

Designing can be defined as relating and visually arranging components or elements to create effects.

- **Effects of line:**

Line is an important factor in developing a pleasing appearance; it deserves the just place in our choice of style. They make the design interesting and pleasing to eyes and give them a direction and spacing.

- **Vertical line:**

Vertical line provide an impression of strength and security and they can be successfully used to give an impression of it while

designing garments for short stuttered women also be used by fat people. It also gives an impression of dignity Stecher (2006).

- **Horizontal line:**

Horizontal line provide an impression of solicits response (rest) tranquility and are used for slim persons these lines tend to reduce the feeling height and increase width of garment by giving an illusion of this nature. Thus horizontal line can be utilized by tall and slim person.

- **Diagonal lines:**

Diagonal lines provide an illusion of roundness, softness, gracefulness, feminist and these are gradually used for girls. They can be best used for stout and broad women

- **Broken line:**

Broken lines consist of horizontal and vertical lines. The width of the garment can be reduces. The neck line of the garment can be extend, and appear to change the contours of the face expressed Neelima (2009).

## **FORM**

A shape is two dimensional in character showing only length and breath. It does not show, height or depth when an area is totally surrounded by lines it becomes a shape. Lines are used to create to the outside dimension or contour of an object. A form is a 3 dimensional object. The human body is an example of form and it can be viewed from any direction. (Front, back or either side). This helps to reveal the contours of the form. It is formed by more than one shape. All 3 dimensional objects are shapes in silhouette form, shape composition and pattern. Sale and Betti (2008).

## **TEXTURE**

Texture refers to surface appearance of fabric stiff or soft, thick or thin, other adjectives being utilized are furry, hairy, fuzzy, crisp, rich, these by different fibers such as cotton, silk, wool, or synthetic, by yarns varied in size, ply, twist uniformity, or death of uniformity such line, crepe, loose, embossed remcerized bounded or glazed fabric. Texture is probably the most potent single guide we have in choosing what is appropriate for the occasion. The different textures give certain feeling to finess efficiency. They only create an impression of bulk comfort, grace or fragility which must be considered with regard to the intended use once personality ones figure Rastogi (2009).

## **PATTERN**

An eye for selection pattern that appeal to a great many customers is an special talent it is important to expose oneself to a great variety of fabrics and to try to imagine how a pattern will look made up in a specific garment. The fabric that varies the pattern is extremely important. A beautiful fabric like silk, crapede chine makes rather somberch or dull prints. Look elegant because of the quality and luster of the fabric the same print on a flat, lusterless fabric will lose a great deal of its beauty and extremes of the figure a very large print on a small pattern or a small motif to dwarf her Tate (2004).

## **III EXPERIMENTAL PROCEDURE**

The methodology pertaining to the “**Designing and constructing garments for cerebral palsy children**” is discussed under the following heading.

### **3.1 Survey**

3.1.1 Selection of Tool

3.1.2 Case Study

3.1.3 Data Collection

### **3.2 Sampling**

### **3.3 Taking Body Measurement**

### **3.4 Selection of Garments for Cerebral Palsy Children**

### **3.5 Creating Design for Cerebral Palsy Children**

### **3.6 Selecting Design for Cerebral Palsy Children**

### **3.7 Design Development for Cerebral Palsy Children**

### **3.8 Drafting Paper Pattern**

3.8.1 Selection of Material

3.8.2 Cutting the Materials

3.8.3 Constructing the Garments

3.8.3.1 Middy

3.8.3.2 Middy top

3.8.3.1 Warp around skirt

3.8.3.1 Top

3.8.3.1 Yoke frock

3.8.3.1 A-line frock

### **3.9 Wear Study**

#### **3.1 Survey**

Survey means viewing and interpreting things rigorously and comprehensively. Surveys are more popular even in non university organization Cauvery, nayock, GirijaMeenakshi (2008). Surveys are often categorized as being either analytic or descriptive Gill and Johnson (1997). On this basis, analytic surveys are concerned to explore associations between variables, so the researcher prefers to focus on survey Taylor, sinha, Ghoshal (2007).

##### **3.1.1 Selection of tool**

The researcher has to design a questionnaire after completing the preliminary work on planning, consulting and deciding exactly what is needed for the study then only the researcher will know whether a questionnaire is suitable for the purpose and likely to yield usable data. The preliminary reading and research plan will have identified important areas for investigation. The researcher questions will help to achieve these objectives. The more structured a questionnaire the easier it will be to analyse. Verbal or open – The expected response is a word, a phrase or an extended comment. Responses to verbal questions can produce useful information but analysis may be required for verbal material unless the information obtained is to be used for special purpose.

More structured questions will not present so many problems at the analysis stage. Youngman suggested the following list, category, Ranking, Scale, Quantity Grid Bell (1999). Due to above reasons investigator selected the questionnaire method.

### **3.1.2 Case study**

Questionnaire was prepared and was given to 50 parents of cerebral palsy children to collect information about their clothing needs.

### **3.1.3 Data collection**

The collection and analysis of data, whether through reading, observation, measurement, asking questions, or a combination of these or other strategies. A series of research approaches and techniques the four approaches – action research, case studies, experimental and surveys provided alternative, not necessarily mutually exclusive, frameworks for thinking about and planning research projects. (Blaxter, Hughes, Tight – 1999). Tools are the ways and means to conduct research and the conduct of research could be justified through the methods and techniques mean for it. Construction of data collecting devices is an important task Khan (2009). The researcher collected data from 50 parents of cerebral palsy children using questionnaire method. The questionnaire is given in Appendix.

### **3.2 Sampling**

It is incumbent on the researcher to clearly define the target population. There are no strict rules to follow, and the researcher must rely on logic and judgment Aggarwal (2010). The complete list of

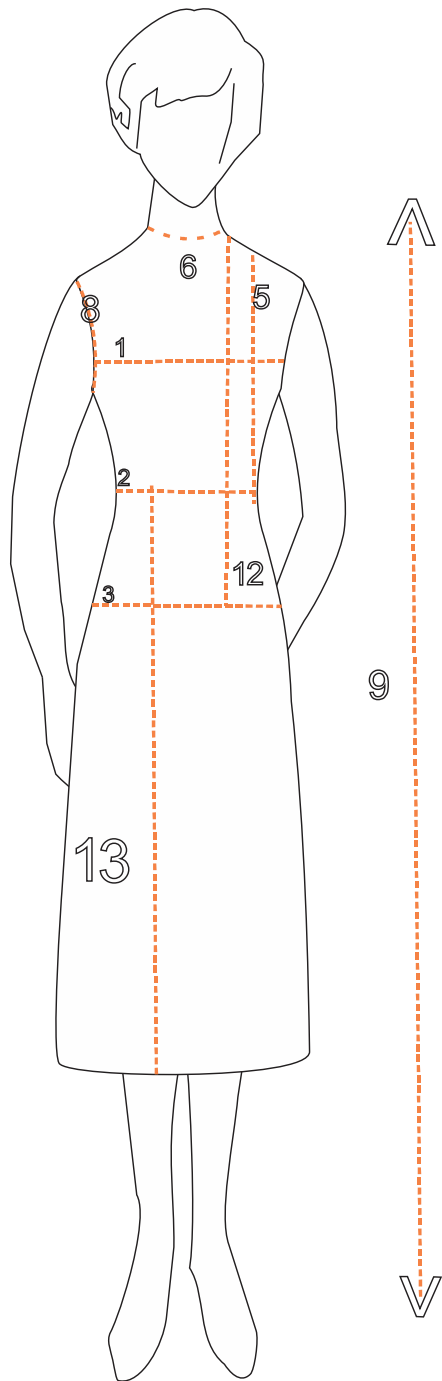
all the members / units of the population from which each sampling unit is selected is known as sampling frame. It should be free from error. Panneerselvam (2009). The researcher selected random sampling for the study.

The researcher past the sampling units in such a way that every unit has some chance of selection in the sample. The sampling method should be one which is characteristics of the population. It is very essential that the selected sample should give proper representation of the population for which it has been drawn Borse (2005). Twenty five from Ashirwad special school, R.S puram, Twenty from Amrit center for special needs and five from Avinashilingam Higher Secondary School, Coimbatore.

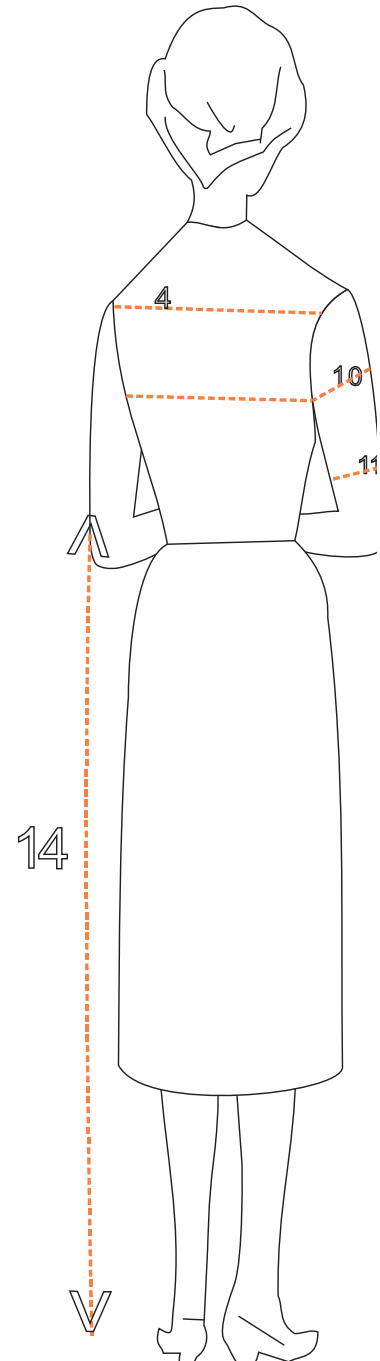
### **3.3 Taking body measurement**

Garments cutting are based on measurements and are natural that correct measurement is the first requirement. If the human body is well balanced. All the parts of the body bear definite proportions to one another. We can thus obtain all other measurements from chest measurement Sodhia(2008). The measurements were taken comfortably without pulling the tape too tightly or loosely. The tape was kept parallel to the floor for horizontal measurements and perpendicular to the floor for vertical measurements. Thus the body measurements. Where are taken carefully following certain sequential order and recorded. It is illustrated is below.

# FRONT



# BACK



1. Bust circumference
2. Waist circumference
3. Hip circumference
4. Shoulder width
5. Shoulder to waist
6. Neck width
7. Front neck depth
8. Armhole round
9. Full length
10. Sleeve length
11. Lower arm circumference
12. Upper arm circumference
13. Waist to knee
14. Waist to ankle

The researcher took measurement of children's to construct garment as:

**Full length:** It took from the midpoint of shoulder to the floor level.

**Sleeve round:** The measurement of sleeve round was the circumference of lower arm.

**Sleeve length:** Sleeve length measurement took from the shoulder joint to desired length.

**Waist length:** It is taken from the midpoint of shoulder to the waist line.

**Bust circumference:** The bust circumference was taken as the bust round.

**Waist circumference:** Thinnest part of the hip is measured round horizontally and tightly.

**Hip circumference:** fullest part of hip is measured horizontally and loosely.

**Upper arm circumference:** Upper arm circumference measure around the fullest part of the arm.

**Lower arm circumference:** measure around at desired level corresponding to lower edge of sleeve.

**Back width:** measure across the back from armhole to armhole about 3 inches below base of neck.

**Neck:** Measure around the neck passing the tape just above the collarbone in front and along the base of the neck at the back.

### **3.4 Selection of garments for cerebral palsy children:**

Based on the result of the opinion of parents, obtained from questionnaire. The investigator selected middy, top. 3/4<sup>th</sup> Skirt, yoke frock, and A- line frock with opening at side of skirt and top for easy to wear and remove.

### **3.5 Creating design for cerebral palsy children:**

Designing garment is an art that requires a lot of knowledge and expertise. Creation of dress is a unique talent which requires right guidance and maturity ([www.fashiondesigning.com](http://www.fashiondesigning.com)).considering above the investigator planned to design and create garments for cerebral palsy children (girls) in the age group of 8 to 12 years. Based on the survey results the garments were designed.

### **3.6 Selecting design for cerebral palsy children:**

In pattern selection, one should decide the purpose of the new garment keeping this mind, 20 manual sketches were designed and given to the 50 parents of special children. Due to time constrain. The

researcher selected 5 designs according to the taste of the parents of cerebral palsy children.

### **3.7 Design development for cerebral palsy:**

CorelDraw into a serious illustration program capable of using system-installed outline fonts without requiring third-party software such as Adobe Type Manager; paired with a photo editing program (Photo Paint), a font manager and several other pieces of software, it was also part of the first all-in-one graphics suite. CAD- that it is to many pc based graphic program. While it may seen akin to point programs such as pc paint brush/ windows paint, the different are clean-cut. Paint programs use bit-mapped graphics and give the illusion of painting on canvas corking with pencil. Gary (1999). The manual design was developed in CAD.

<http://en.wikipedia.org/wiki/CorelDRAW>

### **3.8 Drafting pattern:**

The investigator drafted the pattern for the selected 5 designs by using the basic patterns of middy and middy top, wrap around skirt and top, A-line frock, yoke frock. Pattern details were marked on the patterns.

#### **3.8.1 Selection of material:**

Based on the opinion of parents the investigator selected the material. Cotton fabric has good absorbency and it is comfortable to wear. So the investigator selected cotton fabric. The parents of cerebral palsy children preferred dark colour and floral motifs for garments.

### **3.8.2 Cutting the material:**

The fabrics were cut according to the marking on the pattern. The patterns was placed on the fabric and cut manually using shears.

### **3.8.3 Constructing the garments:**

#### **3.8.3.1MIDDY AND MIDDY TOP:**

- The skirt front part divided into 4 parts.
- Each part consists of desired width by making of gathers.
- Each parts were attached with base cloth in step by step.
- Joint front and back skirt section by completing one of the side seams.
- Finish the other side seam and left a small opening for placket.
- Placket opening was finished by attaching zipper.
- Replaced waist band and attach waist line.
- Finished the bottom hem at skirt and attached fasteners on the waist band.

#### **3.8.3.2MIDDY TOP:**

- Joint the shoulder line.
- Finish the placket.
- Attached sleeve for bodice.
- Finished the neck line with facing.
- Finished the sleeve hem.
- Finished the under arm sleeve of sleeve.
- Finished the side seam continuously and attached fasteners on the placket.

### **3.8.3.3 WRAP AROUND SKIRT:**

- Joint both the side seams of skirt.
- Finished the raw edges of skirt opening with binding.
- Finished the hem line.
- The cord inserted into the waist band.

### **3.8.3.4 TOP:**

- Joint the shoulder line.
- Finish the placket.
- Attached sleeve for bodice.
- Finished the neck line with facing.
- Finished the sleeve hem.
- Finished the under arm sleeve of sleeve.
- Finished the side seam continuously and attached fasteners on the placket.

### **3.8.3.5 YOKE FROCK:**

- Gathered fabric piece is attached in the neck and finished neck by binding.
- Attach placket on the shoulder line.
- Finish the armhole by facing.
- The pleated skirt part was attached with the yoke part.
- Finish the side seam and hem lines.
- Attach fasteners on the placket.

### **3.8.3.6 A-LINE FROCK:**

- Attach the yoke part.
- Finish the hem line with facing.
- Finish the placket.
- Yoke part finished by facing.
- Finish the side seams and hem line.
- Attached the bib on shoulder.
- Joint the shoulder.
- Finish the neck line with facing.
- Finish the placket.
- Attach the puff sleeve.
- Finish the side seam and hem line.
- Attach fasteners on the placket.
- The garments are displayed in appendix.

### **3.9 WEAR STUDY:**

The constructed garment was given to cerebral palsy children. They were asked to wear help of parents. The children felt happy and comfortable to wear the constructed garments. The parents were asked to give their opinion and suggestions. The parents liked the type of construction followed in the garments –Bib attachment, Velcro and full opening. The parents highly appreciated the garments because it is easy to wear and maintain. Hence they prefer custom made garments than readymade garments.



**PLATE 1**

**Middy and Middy Top**



PLATE 2

Wrap







## **RESULT AND DISCUSSION**

### **4.1 Opinion of mothers**

- 4.1.1 Type of fabric preferred by their mothers
- 4.1.2 Type of dress preferred by their children
- 4.1.3 Type of colour preferred by their mothers
- 4.1.4 Type of design preferred by their mothers for their children
- 4.1.5 Type of placket preferred by their mothers
- 4.1.6 Type of fasteners preferred by their mothers
- 4.1.8 preference for how frequency buying garments
- 4.1.7 Type of garment preferred by their mother
- 4.1.8 Preference for how frequency buying garments
- 4.1.9 Preference for allotting amount for garment

## **4.2 Evaluation of the constructed garments**

- 4.2.1 Garment design
- 4.2.2 Suitability of the garment to the children
- 4.2.3 Fitness of the garment:
- 4.2.4 Comfortability of the garment:
- 4.2.5 Colour combination of the garment:
- 4.2.6 Trimming & decoration of the garment:
- 4.2.7 Overall appearance of the garment:
- 4.2.8 Acceptability of the garment:

## **4.1 Opinion of mothers:**

Opinion of mothers regarding their children's clothing

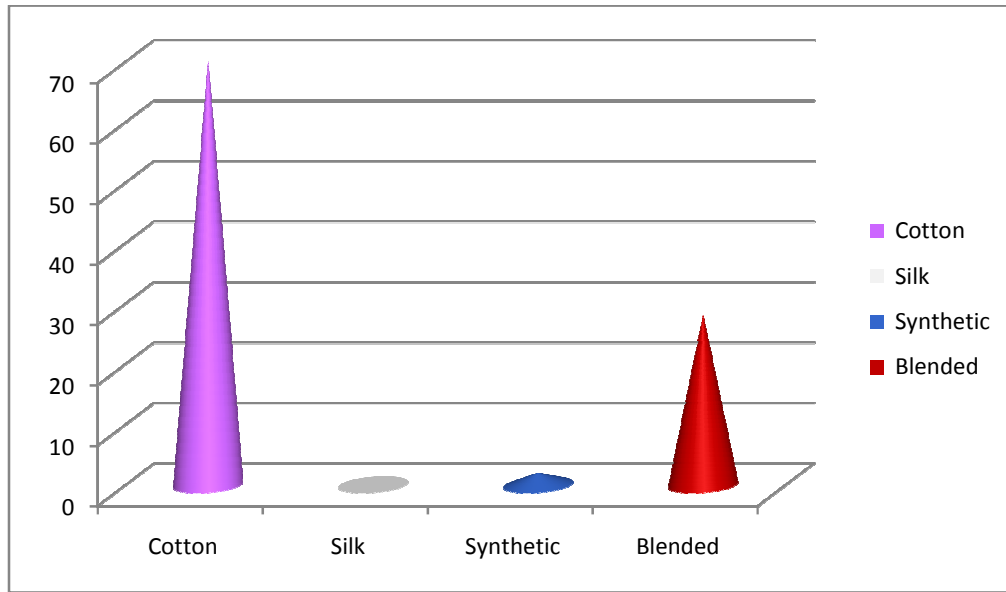
The information obtained from 50 parents are discussed under the following heading.

### **4.1.1 TYPE OF FABRIC PREFERRED:**

The type of fabric preferred by children is given in Table - III and figure 1.

**TABLE- III**

<b>S.NO</b>	<b>TYPE OF FABRIC</b>	<b>PERCENTAGE</b>
1.	Cotton	70
2.	Silk	-
3.	Synthetic	2
4.	Blended	28



**FIGURE: 1**

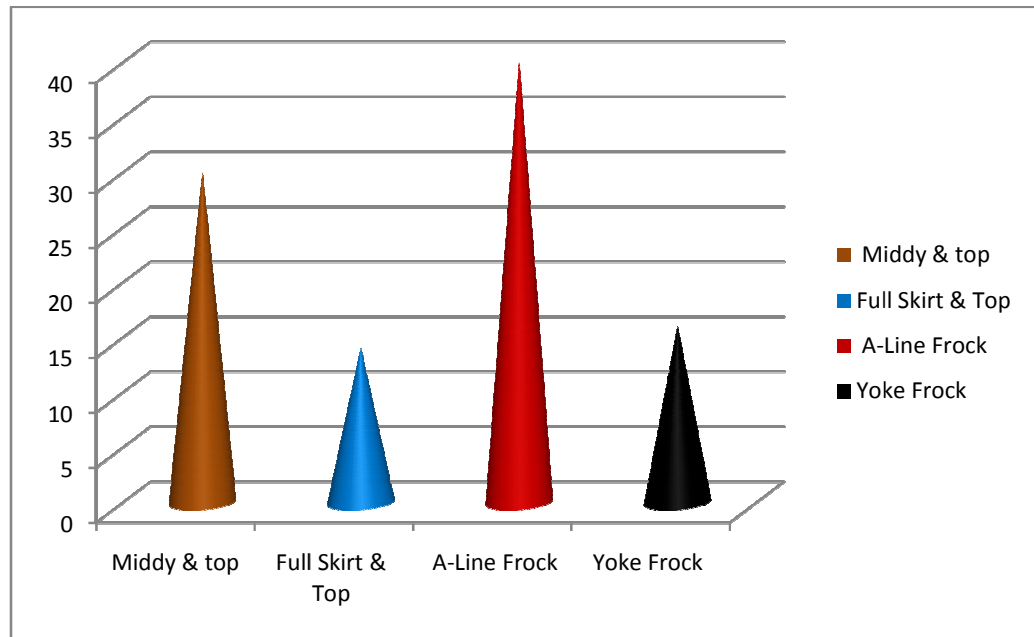
From the table 3 and figure 1 it is clear that 70% of mothers preferred cotton and 28% preferred blended fabric for garment. The other material like synthetic, silk was selected by only 2% the mothers of their grade school functional garment.

**4.1.2TYPE OF DRESS PREFERED:**

The types of dress preferred by children is given in Table - IV and figure 2.

**TABLE - IV**

S.NO	TYPE OF DRESS	PERCENTAGE
1.	Middy & Middy top	30
2.	Full skirt & top	14
3.	A- line frock	40
4.	Yoke frock	16



**FIGURE: 2**

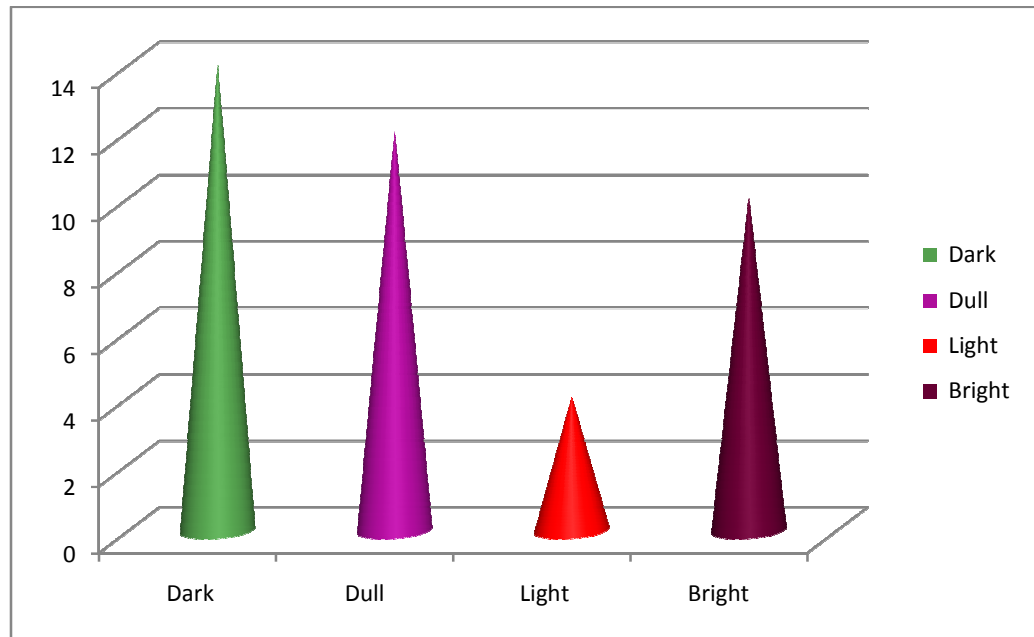
From the table 4 and figure 2 it is clear that 40% of mothers preferred A- line frock and 30% of the mother preferred Middy & Middy top was selected. The other dress like Yoke frock, full Skirt & Top were selected by 16% and 14% respectively by mothers for their grade school functional garment.

#### **4.1.3TYPE OF COLOUR PREFERED:**

The type of colour preferred by children is given in Table - VI and figure 3.

**TABLE - V**

<b>S.NO</b>	<b>TYPE OF COLOUR</b>	<b>PERCENTAGE</b>
1.	Dark	14
2.	Dull	12
3.	Light	4
4.	Bright	10



**FIGURE: 3**

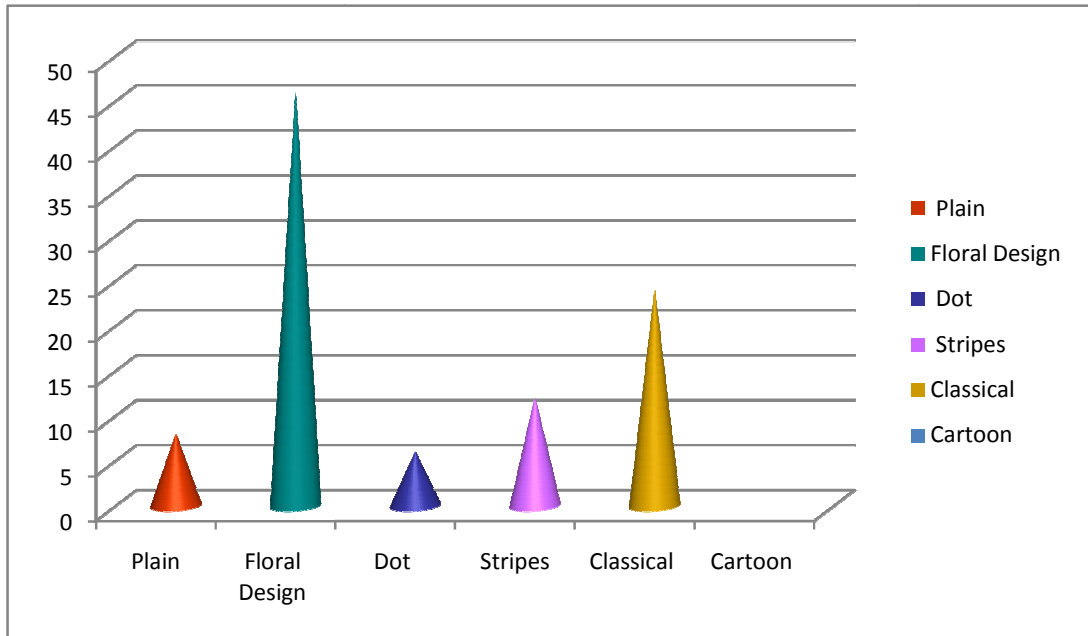
From the Table 5 and figure 3 it is clear that 74% of mothers preferred Dark colour and 12% of the mothers preferred dull colours. The other colours like light, bright were selected by 10% and 4% of the mothers respectively for their grade school children functional garment.

#### **4.1.4 TYPE OF DESIGN PREFERRED:**

The type of design preferred by children is given below in Table - VI and figure 4.

**TABLE - VI**

<b>S.NO</b>	<b>TYPE OF DESIGN</b>	<b>PERCENTAGE</b>
1.	Plain	8
2.	Floral design	46
3.	Dot	6
4.	Stripes	12
5.	Classical	24
6.	Cartoon	4



**FIGURE: 4**

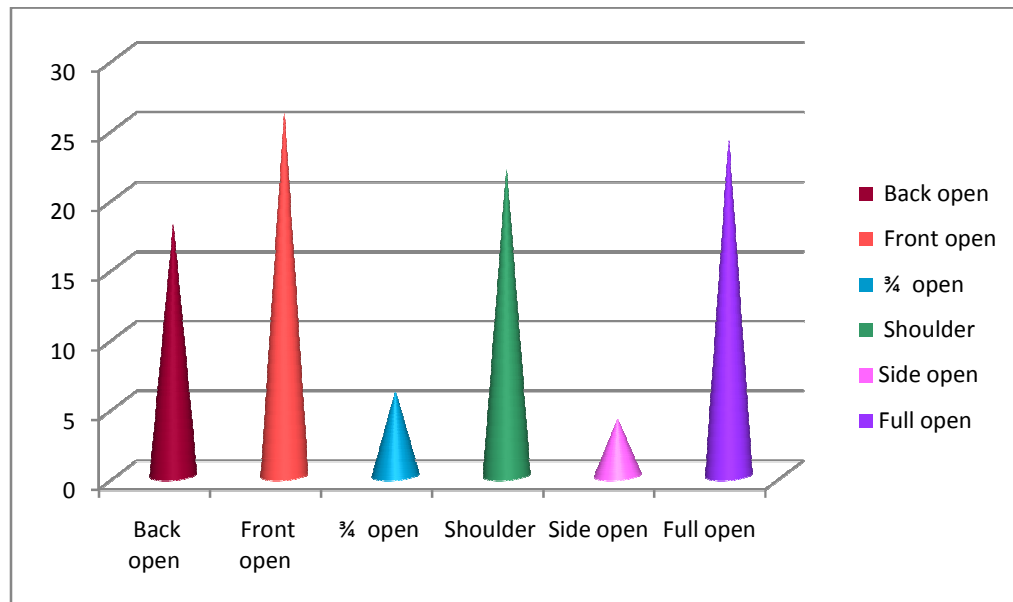
From the Table 6 and figure 4 it is clear that 46% of mother's preferred floral design and 24% of mothers preferred classical designs for garments. The other designs like plain, dot, stripes, and cartoon were selected by 8%, 6%, 12%, and 4% of the mothers for their grade school girl's functional garment.

#### **4.1.5 TYPE OF PLACKET PREFERRED:**

The type of placket preferred by children is given below in Table - VII and figure 5.

**TABLE - VII**

S.NO	TYPE OF PLACKET OPENING	PERCENTAGE
1.	Back open	18
2.	Front open	26
3.	$\frac{3}{4}$ open	6
4.	Shoulder	22
5.	Side open	4
6.	Full open	24



**FIGURE: 5**

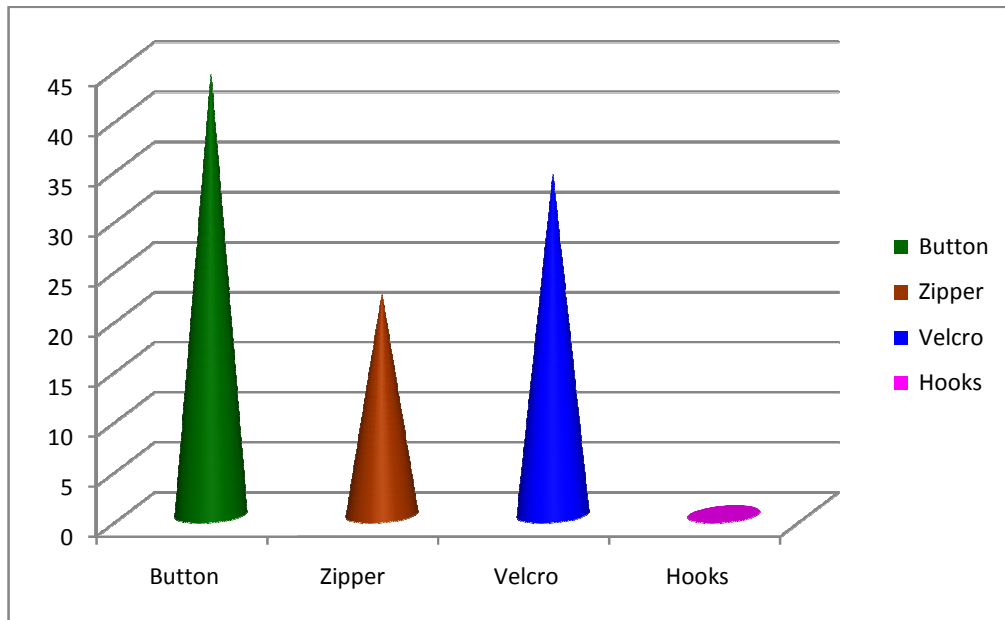
From the Table – 7 figure 5 it is clear that 26% of mother’s preferred front open, 24% of mother’s preferred full line open, 22% of shoulders line open was selected and other plackets like Back open, side open, ¾ open were selected by 18, 4, and 6% of mothers for their children.

#### **4.1.6 TYPE OF FASTNERS REFERED:**

The type of fasteners preferred by children is given below in Table - VIII and figure 6.

**TABLE -VIII**

<b>S.NO</b>	<b>TYPE OF FASTNERS</b>	<b>PERCENTAGE</b>
1.	Button	44
2.	Zipper	22
3.	Velcro	34
4.	Hooks	-



**FIGURE: 6**

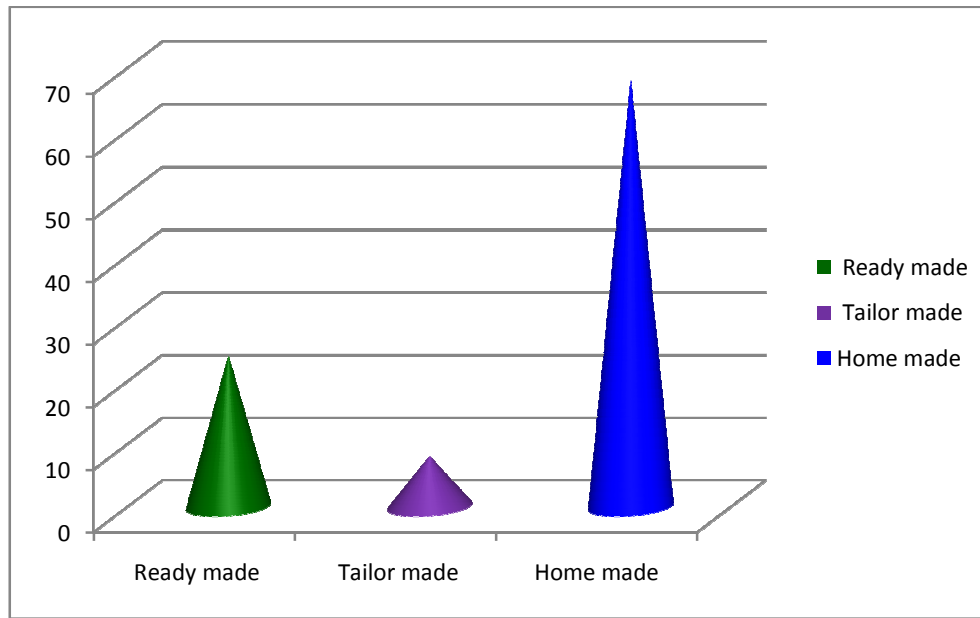
From the table 8 figure 6 it is clear that 44 percentage of mother's preferred buttons and 34 percentage of mother's preferred Velcro and 22 percentages of mother's selected zippers for their children.

#### **4.1.7 TYPE OF GARMENT PREFERRED:**

The type of garment preferred by children is given below in Table -IX and figure 7.

**TABLE - IX**

<b>S.NO</b>	<b>TYPE OF GARMENT</b>	<b>PERCENTAGE</b>
1.	Ready made	24
2.	Tailor made	8
3.	Home made	68



**FIGURE: 7**

From the table 9 figure 7 it is clear that 50% mothers for their grade school wear 68% of mothers preferred Homemade garment 24% of mothers preferred Readymade garment was selected and Tailor made garment were selected 8% of mothers for their children.

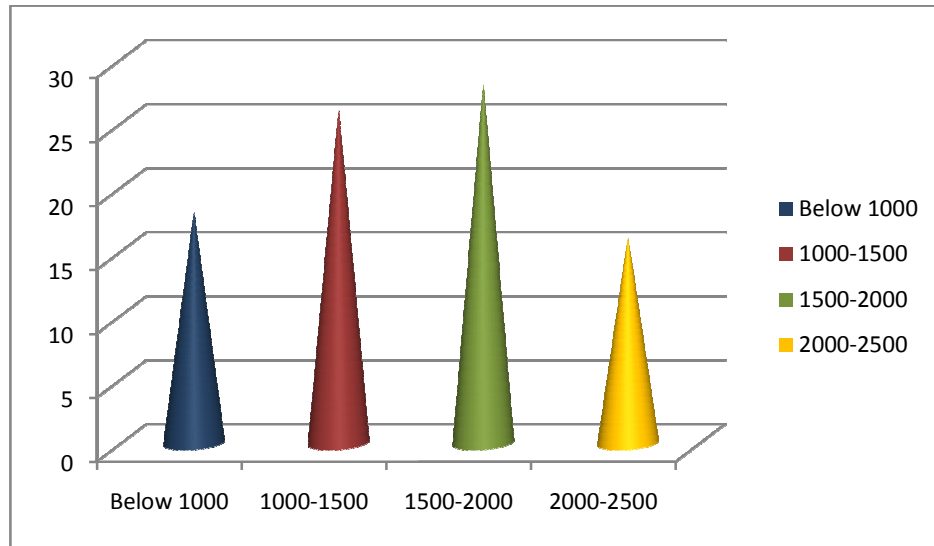
#### **4.1.8 PREFERENCE ABOUT FREQUENCY OF BUYING GARMENTS**

The preference about frequency of buying garments is given below in Table - X and figure 8.

**TABLE – X**

<b>S. No</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
1.	Once in 6 months	14
2.	Once in 3 months	30
3.	Once in 2 months	56

4.	Once in a year	-
----	----------------	---



**FIGURE – 8**

From the table 10 and figure 8 it is clear that the maximum of 56 percentages of mothers expressed the frequency of their purchase as once in 2 months. Followed by their expression as once in 3 months 30 percent and once in 6 months 14 percent .Hence it could be concluded that the maximum mothers of the sample suggested expressed that their frequency of purchase of garments for the children as once in 2 months.

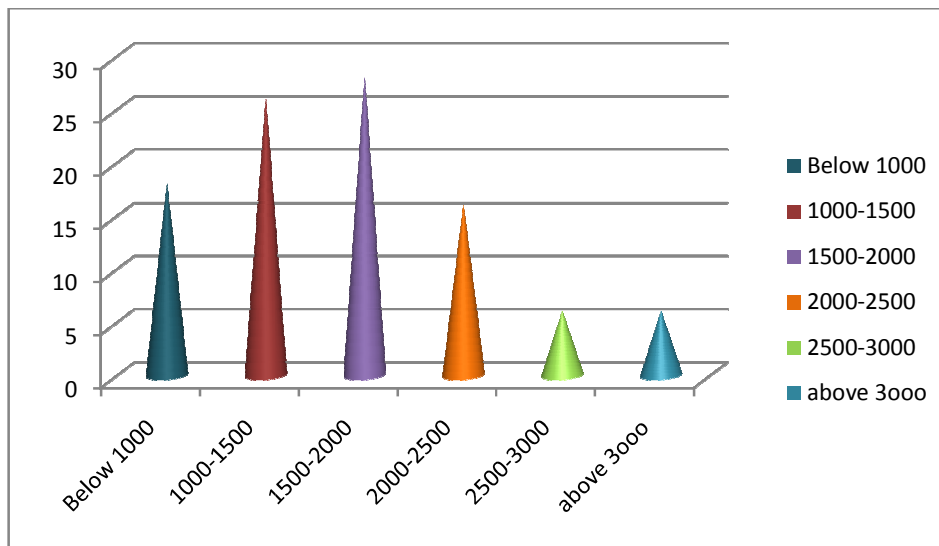
#### **4.1.9 PREFERENCE FOR ALLOTING AMOUNT FOR GARMENT:**

The preference for allotting amount for garmentis given below in Table - XI and figure 9.

**TABLE – XI**

S. No.	AMOUNT FOR YEAR	PERCENTAGE
1.	Below 1000	18
2.	1000- 1500	26

3.	1500-2000	28
4.	2000-2500	16
5.	2500-3000	6
6.	Above 3000	6



**FIGURE -9**

From the table 11 and figure 9 it is clear that the maximum of 28 percent mothers expressed that they would allot amount of Rs.1500/- to 2000/- for the purchase of garment for a child followed by Rs.1000/- to 1500/- below Rs. 1000/-, Rs.2000/- to 2500/- by 26, 18 and 16 percentages of mothers respectively. The least of only percent of mothers expressed that would spend Rs. 2500/- to 3000 and above Rs.3000 for the purchase of garment for the child. Hence it could be concluded that among the samples the maximum mothers expressed that they would allot Rs. 1500/- to 2000/- for the child for purchase of garment.

## **4.2 EVALUATION OF THE GARMENT**

#### 4.2.1 GARMENT DESIGN

The garment design is given below in Table XII.

**TABLE XII**

S.No	Design code	Design			
		E	V.G	G	F
1.	G1	8.5	10	5	-
2.	G2	92	5	3	-
3.	G3	90	9	1	-
4.	G4	91	7	2	-
5.	G5	98	2	-	-

From the table 12 it is clear that the maximum of 98 percent of judges rated the garment G5 as excellent in design followed by the garments G2, G3, G4 and G5 with 92, 90, 91, 85 percentages respectively.

#### 4.2.2 SUITABILITY OF THE GARMENT TO THE CHILDREN:

The suitability of the garment to the children is given below in Table – XIII.

**TABLE XIII**

S. No	DESIGN CODE	SUITABILITY			
		EX	V.G	G	F
1.	G1	90	10	-	-
2.	G2	85	12	3	-
3.	G3	80	15	5	-
4.	G4	90	7	3	-
5.	G5	95	5	-	-

From the table 13 it is clear that the maximum of 95 percent of judges rated the garment G5 as excellent in the suitability of the garment. 90 percent of judges rated the garment G1 and G4 as excellent in the suitability of the garment followed by the garments G2 and G3 with 85 and 80 percentages respectively.

#### 4.2.3 FITNESS OF THE GARMENT:

The fitness of the garment is given below in Table - XIV.

**TABLE – XIV**

S. No	DESIGN CODE	FITNESS			
		EX	V.G	G	F
1.	G1	90	10	-	-
2.	G2	89	8	3	-
3.	G3	92	7	1	-
4.	G4	93	7	-	-
5.	G5	90	7	3	-

From the table 14 it is clear that the maximum of 93 percent of judges rated the garment G4 as excellent in the fitness of the garment and 92 percent of judges rated the garment G3 and 90 percent of judges rated the garment G1 and G5 as excellent in the fitness of the garment followed by the garment G2 is 89 percentage respectively.

#### 4.2.4 COMFORTABILITY OF THE GARMENT:

**TABLE – XV**

S. No	DESIGN CODE	COMFORTABILITY			
		EX	V.G	G	F
1.	G1	93	7	-	-
2.	G2	87	11	2	-

3.	G3	90	9	1	-
4.	G4	90	5	5	-
5.	G5	97	3	-	-

From the table 15 it is clear that the maximum of 97 percent of judges rated the garment G5 as excellent in the comfortability of the garment and 93 percent of judges rated the garment G1 as excellent, 89 in the comfortability of the garment. G2, G3, G4 with 90, 87 percentages respectively.

#### 4.2.5 COLOUR COMBINATION OF THE GARMENT

TABLE – XVI

S. NO	DESIGN CODE	COLOUR COMBINATION			
		EX	V.G	G	F
1.	G1	89	10	1	-
2.	G2	99	1	-	-
3.	G3	95	5	-	-
4.	G4	90	7	3	-
5.	G5	92	7	1	-

From the table 16 it is clear that the maximum of percentage of judges rated the garment G2 as excellent in colour combination and

95 percent of judges rated the garment as excellent in the colour combination of the garment followed by the garments G1,G2, G3 with 90,92,89 percentages respectively.

#### 4.2.6 TRIMMING & DECORATION OF THE GARMENT:

**TABLE – XVII**

S. No	DESIGN CODE	TRIMMING & DECORATION			
		EX	V.G	G	F
1.	G1	89	10	1	-
2.	G2	92	5	3	-
3.	G3	85	10	5	-
4.	G4	87	10	3	-
5.	G5	90	10	-	-

From the table 17 it is clear that the maximum of 92 percentage of judges rated the garment G2 as excellent in Trimmings and decoration of the garment and 90 percent of judges rated the garment as excellent in Trimmings and decoration of the garment followed by the garments G1,G3,G4 with 89,85,87 percentages respectively.

#### 4.2.7 OVERALL APPEARANCE OF THE GARMENT:

**TABLE – XVIII**

S. No	DESIGN CODE	OVERALL APPEARANCE			
		EX	V.G	G	F
1.	G1	92	8	-	-
2.	G2	96	4	-	-
3.	G3	97	3	-	-
4.	G4	95	4	1	-

5.	G5	99	1	-	-
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From the table 18 it is clear that the maximum of 99 percentage of judges rated the garment G5 as excellent in overall appearance of the garment and 97 percentage of judges rated the garment G3 excellent in overall appearance of the garment followed by the garments G1,G3, G4 with 96, 92, 95 percentages respectively.

#### 4.2.8 ACCEPTABILITY OF THE GARMENT

**TABLE – XIX**

S. NO	DESIGN CODE	ACCEPTABILITY			
		EX	V.G	G	F
1.	G1	92	5	3	-
2.	G2	89	10	1	-
3.	G3	90	8	2	-
4.	G4	94	6	-	-
5.	G5	95	3	2	-

From the table 19 it is clear that the maximum of 95 percentage of judges rated the garment G5 as excellent in acceptability of the garment and 94 percentage of judges rated the garment G4 as excellent in acceptability of the garment followed by the garments G1, G2, G3 with 92, 89, 90 percentages respectively.

#### SELF ASSESSMENT

S. No	Design code	Ease		Line		Grain		Set		Balance	
		Good	Fair	Good	Fair	Good	Fair	Good	Fair	Good	Fair
1.	G1	85	15	100	-	100	-	95	5	100	-
2.	G2	95	5	100	-	100	-	95	5	95	5

3.	G3	90	10	100	-	100	-	96	4	100	-
4.	G4	95	5	100	-	100	-	96	4	100	-
5.	G5	98	2	100	-	100	-	100	-	100	-

- **EASE**

From the table it is clear that the maximum of 98 percent of the subjects rated the garment G5 to have good ease followed by the garments G5, G3 and G1, G4 of 95, 95, 90 and 85 percentages respectively.

- **LINE & GRAIN**

As for the line of the garment, cent percent the subjects rated all the garments G1, G2 and G3, G4, G5 to have good line and grain in the garment.

- **SET**

As far as the set of the garment is concerned, the maximum of cent percent subjects rated the garment G5 to have good set followed by the garments G1, G2 G3,G4, G5 with 95,96 percentages.

- **BALANCE**

The balance was rated to be good by cent percent subjects in the garments G1, G3, G4, G5 as it was 95 percent in the garment G2. Hence it could be concluded that all the garments had good line and grain, garment G1 had good balance, G3 had good ease and garment G3 had good set and G4 had balance.

## **FINDINGS:**

The maximum of 70 percentages of mothers preferred cotton fabric for their children and 28 percentage of mothers preferred blended fabrics for their children. The maximum of 40 percentages of mothers selected A- Line Frock for their children and 30 percentage mothers preferred Middy and Middy Top. The maximum of 74 percentages of mothers preferred Dark colours for their children. The 46 percentage of mothers preferred floral design for their children. And 24 percentage of mother preferred classical design.

The maximum of 26 percentage of mother preferred front opening plackets for their children. The 44 percentage mother preferred Velcro for their children.

The maximum of 68 percentages of Homemade garments preferred for their children.

The majority of mothers expressed that their frequency of purchase of garment for their children as once in 2 months. The expressed that they could allot Rs. 1500/- to 2000/- per year for the child for purchasing garment.

### **SUMMARY AND CONCLUSION:**

Clothing is one of the basic needs of human being, the effect of clothing can take care of psychological and physical aspect of comfort by suitable selection of colour, design, texture, style, garment fit etc., and Clothing is the second skin ranking with food and shelter as essential for human survival. The readymade garments are mostly preferred by grade school children.

The parents of cerebral palsy children could not fit than they feel uncomfortable because of their disability. Hence parents prefer homemade or custom made garments. The designed garment is very useful for cerebral palsy children. The study shows that the garment is

easy to wear, comfortable and easy maintain these types of garments are not available in market. The commercialization of these types of garments will be very useful for cerebral palsy children. Lot of potential is there for the garment designed by the investigator.